THE

PROGRESS OF MEDICINE:

BEING THE

INTRODUCTORY LECTURE

Delivered at the Opening of the Eighty-ninth Session, 1873-4,

OF

The Medical College

OF

THE LONDON HOSPITAL.

BY

M. PROSSER JAMES, M.D., M.R.C.P.,

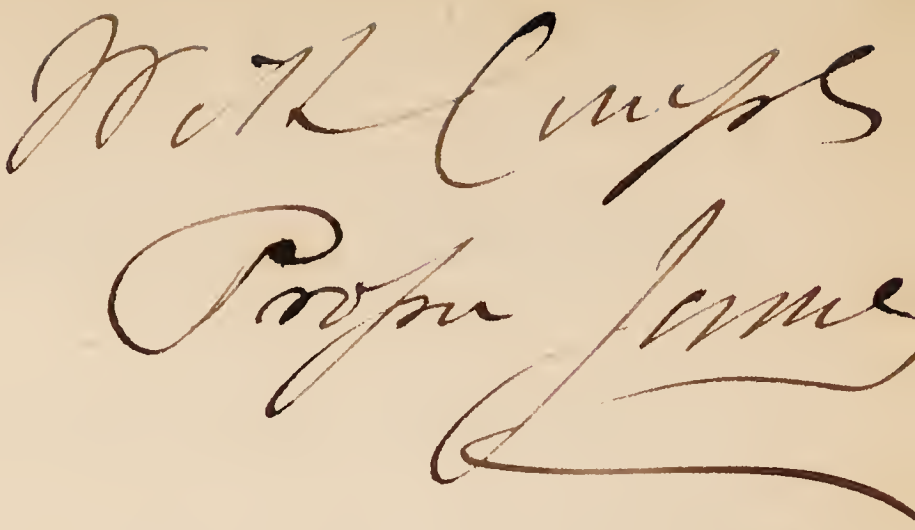
PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS, FORMERLY OF MEDICAL JURISPRUDENCE AND PUBLIC HEALTH, IN THE COLLEGE;
PHYSICIAN TO THE HOSPITAL FOR DISEASES OF THE THROAT;
LATE TO THE NORTH LONDON CONSUMPTION HOSPITAL;
FORMERLY TO THE CITY AND METROPOLITAN DISPENSARIES;
CORRESPONDING MEMBER OF THE ACADEMIES OF MEDICINE OF MADRID, LYONS, AND BARCELONA.

LONDON:

BAILLIÈRE, TINDALL, AND COX,

20 KING WILLIAM STREET, STRAND.

1873.



THE

PROGRESS OF MEDICINE:

BEING THE

INTRODUCTORY LECTURE

Delivered at the Opening of the Eighty-ninth Session, 1873-4,

OF

The Medical College

OF

THE LONDON HOSPITAL.

BY

M. PROSSER JAMES, M.D., M.R.C.P.,

PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS, FORMERLY OF MEDICAL JURISPRUDENCE AND PUBLIC HEALTH, IN THE COLLEGE;
PHYSICIAN TO THE HOSPITAL FOR DISEASES OF THE THROAT;
LATE TO THE NORTH LONDON CONSUMPTION HOSPITAL;
FORMERLY TO THE CITY AND METROPOLITAN DISPENSARIES;
CORRESPONDING MEMBER OF THE ACADEMIES OF MEDICINE OF MADRID, LYONS, AND BARCELONA.

LONDON:
BAILLIÈRE, TINDALL, AND COX,
20 KING WILLIAM STREET, STRAND.

1873

This Lecture appears in its present form in compliance with the wishes expressed by many friends, including both Colleagues and Pupils.

P. J.

29 Albemarle Street, W.,

October, 1873.

THE

PROGRESS OF MEDICINE.

GENTLEMEN,—Twenty years ago to-day I took my seat for the first time as a student of the London Hospital, and listened to the introductory address delivered by Dr. Parker, whose eloquence I cannot hope to rival, and whose kindness I remember as clearly as his willingness to instruct all who were ready to learn.

That lecture was not delivered within these walls, but in the old school located on the other side of the hospital, and it was the last introductory lecture delivered in that building, which is now in process of demolition, and on the site of which will shortly be erected another extension of the hospital. Though not to be compared with this, that building gathered around it many memories that will linger long in the coming years. There for nearly seventy years was carried on the great work of Medical education, commenced by the first surgeon of the London Hospital, Mr. John Harrison, and placed on a firm foundation by his successors; foremost of whom were Sir William Blizzard and Dr. Maddocks. These two established here the first complete Medical school in connection with a hospital on the model of a university faculty.

When I entered the Hospital, the governors had already

resolved to erect a building adequate to the requirements of the time, and the following year the College in which we are this day assembled, was opened by an introductory address by my esteemed teacher, Dr. Little.

Since then this College has been greatly enlarged. A glance at our new museums and laboratories is sufficient to prove that we have marched with the times, that progress is our normal state.

The same fact may be gathered from the great building to which the College is an adjunct, for the Hospital has grown too. In 1866 the third wing, the Alexandra, was added to the two which had been erected in 1831 and 1842 respectively ; and at this very time the foundations are being laid of another wing, estimated to cost £100,000, of which nearly the whole sum has been promised. The remainder will not be wanting unless the citizens of London are about to forfeit their character for munificence, and leave one of their noblest charities insufficiently supported.

These successive enlargements of the means of study appear to me solid indications of the steady progress of our art, and convincing proofs that in that progress the London Hospital has not lagged behind. I have, therefore, thought it not inappropriate on this occasion, before an audience of London Hospital men, to take as my subject the Progress of Medicine in my own time ; selecting most of my illustrations from those connected with the London Hospital or its College. In doing this, I have the further excuse that the time at my disposal admits of but few illustrations from many equally apposite, and the period embraced is one which can scarcely be matched in any other of like duration ; while having commenced my curriculum in the old school and completed it in the new, I

may be looked upon as a sort of connecting link between the past and present. This will be the more apparent when I tell you that before becoming a student here I had served an apprenticeship in the old-fashioned way, which, spite of all that is said to the contrary, possesses many advantages; especially if the master should be "a real old English gentleman," such as I had the privilege of serving in Mr. Huxtable, a London Hospital man, who had then been in practice for forty years, his College of Surgeons diploma dating 1813, but who, as a worthy alumnus of this hospital, had diligently kept *au courant* with what was done in his time, and who, now retired from the arduous duties of the Profession, which he discharged for more than half a century, still lives beloved by all who know him. He sent to this hospital his children, his grandchildren, and numerous pupils, of whom I was the last.

Whether we look at our art or to the sciences on which it is founded, I believe we have no reason to blush at the manner in which we of the present generation have carried on the work handed down to us by our predecessors. I know that it is not uncommon for those outside our ranks to sneer at our inability to cure

"The thousand natural shocks that flesh is heir to;"

and to adduce the progress of the physical sciences by way of contrast with what they are pleased to call the stagnation of Medicine. I admit not the contrast, and those who talk thus entirely misrepresent the facts. Now and again in the roll of the centuries a genius may suddenly endow our art with some new resource, but we do not measure our progress by these giant strides; which, indeed, are

not seldom claimed by the devotees of other sciences, and for this reason, Medicine is not of itself a science at all. Rather is it a science of the sciences, or more exactly the art of applying science. The art of healing, in the wide and true sense of the term, is the art of applying all knowledge to the relief of sickness and suffering. The primary duty of the doctor is to cure; when he cannot do that, to relieve. For this end he is to apply all sciences, all knowledge. No fact in nature but may some day or other suggest a remedy. No law in the wide universe but may some day indicate danger or inspire hope. Therefore we do not seek knowledge for its own sake alone, but for what it may lead to. Those who thus appreciate our position will understand how it is that no branch of learning seems to exist in which Medical men have not distinguished themselves.

It is perfectly true that some sciences are more intimately associated with our art than others. Chemistry, anatomy, physiology, pathology, form the foundations on which we build, and we need not go beyond these in our retrospect of recent progress.

The first, indeed, has not merely seemed to progress,—it has undergone a complete metamorphosis. Chemistry is to-day a new science. Its very nomenclature has been utterly changed in my time. Medical chemistry is of itself a distinct branch of the science, and so rapid is its progress that no small effort is required to enable us to keep pace with it, though many are eagerly watching its discoveries in order to apply them to the actual treatment of disease. It has taught us the composition of our tissues, and something of the manner in which they are repaired. It has given us some notion of the changes constantly

produced by every function of life, and enabled us to comprehend many of our relations to the outer world; but, far better than this, it has dowered us with new remedies, taught us many of the laws on which disease depends, and placed in our hands antidotes to the most virulent morbific influences.

In connexion with chemistry may be mentioned a new method of research of surpassing delicacy. Spectrum analysis brings within our ken the infinitesimal, and actually enables us to carry our investigations into other worlds. It has already resolved the mystery of the sun's heat. It tells us something of our sister planets, and unveils some of the secrets of the fixed stars; and let me tell you, gentlemen, that recent as is the application of the spectrum to physical research, it has already been questioned in reference to Medical problems. As soon as the new method became practicably available, its relations to chemistry, pathology, and medical jurisprudence were publicly taught in this College by our Professor of Chemistry, and you may find an abstract of his early teaching on the subject in the third volume of the "London Hospital Reports." As one of Dr. Letheby's pupils, I may venture to add that it is not alone in chemistry that he has shown his prowess. To him we owe a very important physiological discovery, which was communicated by him to the Royal Society in 1851, and this College owes him a debt of gratitude for the beautiful preparations illustrating comparative anatomy which he has presented, all of which were the work of his own hands.

Spectrum analysis may be said to date from 1859, for it was then that Kirchoff and Bunsen rendered it practicable by contriving a complete apparatus with which they carried on their researches; but they were not the earliest workers

at the subject. As so generally happens in all discoveries, others had preceded them, and more or less anticipated them. The late Professor Miller had in 1845 completely stated the theory on which so much is built. Before him, Fox Talbot, in 1826, had asserted his ability to distinguish lithia from strontia by means of spectrum analysis. Earlier still, namely, in 1815, Fraunhofer had magnified the spectrum, and thus more distinctly seen the dark lines which Wollaston had described in 1802 ; and the germ of all this may be traced back yet a century earlier, when Newton first broke up a beam of white light into its component colours by means of a prism, and called the little artificial rainbow he thus produced "the Solar Spectrum." Had his great mind not been fully occupied with so many other weighty problems, we may easily conceive that he would have completed spectrum analysis a century and a half before it was accomplished. Even as it is, after all the toil and patience of the many who have thought out the solution of the facts observed, no greater proof of our progress can be given than this,—that a three-sided bit of glass which, hanging in our chandeliers, shows us a pleasant play of colours, should enable us to solve the mysteries of other worlds.

If chemistry has thus advanced, and spectroscopy become a science in our time, anatomy and physiology have not been behind. In this College they have long been separated, as they deserve to be, for educational purposes ; but in a hasty summary like this they may be taken together as constituting the science which treats of the structure and functions of our bodies. As such they form one of the main columns that support the temple of Medicine, or they may be called the very corner-stone of the building.

Great has been the progress made, and the London Hospital and its College has not been behind. Let me give you an illustration. Many of the most interesting problems relate to the form of various parts. We find certain parts fulfil certain functions. Why? Careless observers are often content to say no more. The man of true scientific mind desires to penetrate further; and this he may do either by reason or experiment. The true reasoner is the highest type of intellect. The experimenter, indeed, deserves our thanks for the facts he accumulates; but it is the reasoner who explains them. Harvey established his doctrine of the circulation of the blood by reason and experiment together; but many facts unknown to him have since been discovered, and they greatly enlarge our notion of the circulation. We may, indeed, describe the capillary or ultimate circulation as a modern discovery. The last contribution, however, to our knowledge of the circulation, —that to which I invite your attention, does not relate to this, but to the central organ—the heart. The openings through which the blood flows into, and out of, the cavities of the heart differ in size and shape. Why? The fact has been known from early times. The explanation might be supposed to accord with physical and mathematical laws. It was reserved for our senior physician, Dr. Herbert Davies, to prove that the several sizes and shapes are those best adapted to bring about the required result in the most perfect manner, and to furnish the formula for calculating one from the other, which may henceforth be termed Davies's Law; and this law stops not within the domain of physiology, but gives us a further insight into pathology, for his explanation of the condition of the parts in health enables us to comprehend the effects of changes that are observed in disease.

Physiology and pathology are so intimately connected that illustrations might well be classed under either. The next I take will serve as a stepping-stone to pathology. It relates to the nervous system, our knowledge of which has lately made immense progress, the London Hospital being again to the fore. Aphasia is a condition upon which much light has been shed, and the physiology and pathology of the nervous system have in my time been completely remodelled. More than one London Hospital man has worked at this subject, but no single individual has accomplished more than one of our present physicians, Dr. Hughlings Jackson. It is indeed directly due to his clinical study of convulsions and other lesions that the greatest step has been taken towards the elucidation of the functions of the brain. He showed the way investigators should pursue. He predicted the discoveries that have just been announced as the result of the brilliant experiments carried out by Fritsch, Hitzig, and Ferrier, and which have completely realised his anticipations respecting the localisation of the functions of the brain. Regarding disease as an experiment made by nature, Dr. Jackson arrived at conclusions which Professor Ferrier's experiments have exactly confirmed, and which seem to show that the ideas involved in what is called phrenology have after all a certain scientific basis. The geography of the brain is now being mapped out, and had Gall and Spurzheim pursued the method of Jackson and Ferrier, they might have been great discoverers instead of the constructors of an inadequate hypothesis.

The mention of the brain suggests that the mind is itself the subject of the physician's anxious care, and that my former fellow-student and present colleague, Dr. Langdon Down, has well employed unusual opportunities of investigating congenital mental lesions.

Speaking of the nervous system, it may be mentioned that diseases have lately been referred to it which used to be otherwise classed; for example, certain diseases of the skin. Rheumatism, also, has lately been referred to a sort of cerebro-spinal meningitis, but that great London Hospital veteran, Dr. Billing, long ago called it a neuritis.

I pass now to pathology proper, by which I mean the science of disease. Pathology is, to abnormal structure and function, what anatomy and physiology are to normal; thus it embraces more than morbid anatomy and histology. It goes hand in hand with clinical knowledge, without which we could not, from mere changes of tissue, discovered after death, understand the phenomena of disease. When pathological processes take the place of physiological ones, disease results. In the restoration to health there is a return to physiological action, and if by any means we can promote the substitution of one process for the other, we are curing the patient. A man may be successful in a particular case by following a routine he has seen others follow, but no man can be a safe doctor who is ignorant of pathology, although it is equally true that pathological knowledge alone will not make a man a great physician. Great has been the progress made in pathology in my time, and in that progress the London Hospital has had a large share. The microscope has played so important a part in pathological researches that it will be convenient to group around that instrument my illustrations of the progress. Before my time the microscope had been applied to the investigation of diseases of the skin, of the mucous membrane, of the kidneys, and of other organs. By it the structure of the various tissues and the nature of the secretions and ex-

cretions had been made plain. In some instances it had rendered diagnosis exact, but it was not then in the hands of every practitioner, still less of every student.

When I entered the London Hospital the microscope was by no means ignored, for Dr. Carpenter included microscopic demonstrations in his course of physiology, and assuredly with so eminent a microscopist as our professor it may be supposed that no school was in advance of this. But yet how great progress has since been made. To-day we can offer our students the most complete instruction in the use of the microscope; and the original work done in our laboratory is being applied to the elucidation of some of the most important Medical problems.

Looking back to the time of my entry into the Profession I recall one name that overshadowed the microscopic world. That name was Quekett, and even now, if anyone should ask what the Queketts, for there were two, did in histology, he would be likely to be answered in the one word—everything. From the Queketts a new era in microscopic work may be dated, and both of them were London Hospital men. Nor is our *alma mater* behindhand now; for one of the great questions of pathology at this time relates to recent investigations into the connection of Bright's disease with certain definite changes in the vascular system. In explanation of the facts observed, a theory has lately been proposed by one of our staff—Dr. H. G. Sutton—in conjunction with Sir William Gull. It is true that their theory has been warmly contested, and may be said to be still on its trial, but whether ultimately accepted or not, a mass of facts has been accumulated which must prove serviceable to

other searchers after truth. In reference to this, I believe I am correct in stating that all the original work on which the hypothesis is based, was performed within the walls of this College ; and that nearly all the preparations were made in our laboratory. Thus we see that to this very day the London Hospital and its College maintains its reputation for microscopical research, and I take it that as London Hospital men you will feel an interest in one or two other landmarks of our progress in this department of pathology.

Look at inflammation. This process, always an absorbing study, has been investigated with renewed vigour during the last twenty years—especially the last five or six. Virchow's cellular pathology seemed to reign supreme until lately, notwithstanding many indications of its inadequacy. It was not till 1867 that it was really deposed, chiefly through the attention bestowed on Cohnheim's researches. It is here curious to note that to Cohnheim is not due the credit of priority in the investigations and discoveries that have so largely displaced Virchow's theory, and brought us nearer to the pathology of an earlier time ; for, twenty-eight years before, nearly all the microscopic appearances of inflammation had been described by Dr. William Addison, whose views I perused when yet a student, and which had been accepted by Dr. Williams, whose "Principles of Medicine" was one of my earliest text-books.

The subject of degenerations of various kinds is another which has made rapid progress, and for our knowledge of these processes we are indebted to the microscope.

Minute changes of structure in various organs precede

or accompany a number of diseases in which, until lately, we were ignorant of their occurrence. The discovery explains many phenomena which were previously inexplicable. It is to the investigations of another London Hospital physician—Dr. Fenwick—following the lead of Dr. Handfield Jones, that we owe much of our knowledge of this subject.

Another illustration. Our knowledge of parasitic disease is being constantly enlarged by the microscope. Some of the recent discoveries respecting this subject are truly astounding. It was curious enough to find that the tape-worm passes through the most different stages of existence, taking up its abode in different organs or different animals during the strange stages of its peculiar life, and great credit is due to those who demonstrated that the vicissitudes of this parasite are the cause of such dissimilar diseases. This was only getting known at the beginning of my career, but of what new discoveries was it not the forerunner? Recent researches show that not only are the surfaces and the cavities of our bodies turned into the tenements of parasites, but that these minute organisms live in our very flesh and abound in our very life-blood.

A very fatal disease, previously probably confounded with fevers, has lately been proved to arise from parasites which gain access to the system in the flesh of animals taken as food. Once entered they soon find their way into the muscles of their victim. The trichina was, indeed, long since known to inhabit human muscles, but it was regarded as a sort of curiosity in the dissecting-room. It was first seen by Tiedemann in 1822. Owen described it more fully in 1835. A little later (1838) a London Hospital worthy, Mr. Curling, found some in the muscles

of a man who had been run over, and he sent specimens to Dr. Cobbold, whose researches as to the entozoa have been so important. It was not till 1860 that Zenker proved that this parasite, instead of cretifying and degenerating, was more likely to free itself, and, migrating among the muscles, give rise to a fatal and painful disease now called trichinosis.

To another parasite, the echinoccus, which takes up its abode in any or all of the organs, has been traced the fatal endemic disease of Iceland, for which no cure has yet been discovered; and it is probable that the dysentery and chlorosis of Egypt, and the hæmaturia of Natal are due to a distoma making its home in the vitals of its victim.

But more astonishing than this, is the latest discovery in parasitism. We are now assured by a very able microscopist, Dr. Lewis, of the Army Medical Service, that næmatoid worms may swarm in the blood of a man without, so far as we yet know, giving rise to disease at all.

On the other hand, vegetable parasites in the blood seem very pernicious. The recognition of the fact that some diseases of the surface and outlets of the body were but the manifestations of the presence of plants growing there, not only led to exact diagnosis, but enabled us to apply successful treatment. Can we hope for as much when plants are found in the blood?

The investigations of the last three or four years suggest that minute vegetable organisms find their way through wounds—possibly, also, occasionally through other channels—into our blood-vessels, or even into the interior of cells. Then they grow, and of course block up the vessel or cavity they occupy. Suppose they adhere to the valves of the heart, to what may they not eventually give rise? If torn from their attachments to the walls of the vessels,

and whirled away in the torrent of the circulation, may they not somewhere become arrested and bring about embolism?

The pathology of tubercle has been much studied with the microscope. Indeed, tubercle is of such absorbing interest to all physicians, that we naturally employ every means at our disposal to elucidate the problems gathered around it. The overwhelming influence of Laennec is still apparent; when I began my career, his theory was widely regarded as axiomatic, although Reinhardt had already published his investigations, and maintained that no such entity as tubercle existed. Opinion is now divided, and many seem to take a middle view, as if in one case tubercle could be a specific product, while in another it could be only a form resulting from the structure of the part where it is seen. Only a little while ago, Villemin announced that he could produce tubercle in animals by inoculating them with the sputa of consumptives. Then many at once concluded that Laennec was right after all, and that Reinhardt must have been wrong. It was, however, very soon shown by English experimenters that rabbits, the animals employed by Villemin, were particularly liable to tubercle, and, moreover, that the inoculation of other material of a non-tubercular nature would give rise to tuberculosis. The first person to show this was Dr. Andrew Clark, a London Hospital physician, whose prior researches on phthisis had conferred upon him the highest distinction.

I cannot leave this subject without making an announcement that I deem of the first importance. It is well enough known that consumption may be arrested, but it has hitherto been laid down that one form of it, laryngeal

phthisis, is rapidly and necessarily fatal. Cases are, indeed, frequently spoken of as galloping consumption of the throat. Now, in such cases it has been my privilege to witness the arrest of the disease. In one instance the lungs as well as the larynx were deeply affected, nevertheless the patient recovered and resumed employment as a public singer.

We come now to the consideration of the practical aim of our art; and here I assert there are striking signs of progress. A few illustrations may be conveniently grouped around certain instruments that help us to detect or cure disease.

Contrasting our present resources with those of my student days, nothing is more remarkable than the constant use to which we now put the thermometer. When I entered this College the clinical value of the instrument was unknown, though it is true that important observations had been made with it. Now every physician carries one in his waistcoat pocket. Clinical thermometry is often said to have originated with Traube in 1851, for in that year he published his important observations, but it was some time before it began to influence practice. Twenty years before then, however—namely, in the cholera epidemic at Newcastle-on-Tyne in 1831—a London Hospital physician, afterwards one of my teachers, Dr. Cobb, had employed the thermometer to measure the tendency to death, and he was assisted by Dr. Little and others. As, however, in so many other cases, all these observers had been anticipated. As early as 1754 Antonius de Haen had publicly taught in Vienna that the temperature of the body should be measured by a thermometer, and he showed not only that in fevers the heat was abnormally great when perceptible to the hand, but

that even in the cold stage of intermittents, when the patient is shivering and his teeth chattering, the blood is already rising in temperature. When we remember how large a part increase of temperature plays in disease, how obvious it is to the physician, how constantly complained of by the patient, it is a matter of no small surprise that this heat should not have been measured at an earlier period ; and this is the more remarkable when we consider how common it was, for other purposes, to use the thermometer, an instrument which was itself invented by Sanctorius, a physician in the sixteenth century. It was an every-day remark that the hand could not be trusted to regulate the temperature of a bath, and yet physicians who knew this went through their lives trusting to their hands to distinguish the temperature of their patients' bodies, and never thought of applying a thermometer. And this, too, although from the earliest times increased temperature was recognised as the most important factor of fever. Galen defined fever as "preternatural heat," and Hippocrates had previously named it "pyrexia." Modern research is bringing us back to the conception of fever thus handed down from the father of medicine.

I have shown that London Hospital men were pioneers in clinical thermometry. With the learned translator of Wunderlich, Dr. Bathurst Woodman, on our staff, the subject is not likely to be neglected now.

The thermometer, so to say, extends the sense of touch in the physician, just as the stethoscope assists the sense of hearing. Sounds and probes were used from early times to assist the sense of touch, and for ages the surgeon had an advantage over the physician in being able to bring this sense to bear upon the parts he treated.

Another instrument greatly enlarges the sense of touch. Every one knows the importance of feeling the pulse, and most people are aware that the finger of the experienced physician conveys much information in addition to the estimate of the frequency of the pulsations. This *tactus eruditus* is not easy to acquire nor to teach. During the last few years we have begun to feel the pulse by machinery, for M. Marey having devised an instrument for physiological work in reference to the circulation, physicians speedily discerned in it an additional means of investigating disease. The sphygmograph is not to supersede the physician's fingers, but it enables him to measure certain characteristics of the pulse. Thus the arterial tension which we used to estimate by the hardness or softness of the pulse is measured by the sphygmograph. So also is the resistance. Information of this kind is useful in the diagnosis of diseases of the heart and great vessels, and may often enable us to predict the result, or guide us in treatment. Moreover, like many other advances, it may not stop here. I would suggest, with all deference, that it may assist in the solution of such problems as that to which I have alluded in reference to Bright's disease. Such changes as Sir William Gull and Dr. Sutton describe in the arteries and capillaries must impair their action,—make them less pervious—that is, increase the arterial resistance to be overcome by the heart. We know how often increased thickness of the walls of the heart occurs in Bright's disease. Is the increased resistance measurable by the sphygmograph before the hypertrophy of the heart can be detected? That seems to me a problem worth investigating.

In our times the sense of sight has also been greatly

extended. From the earliest times it could not but be natural to try to peer as far as possible within the outlets of the body. It was easy to look into the mouth, the throat, the nose, the ears ; and with regard to the two last, what more natural than to use a probe or even a simple tube to dilate the cavity? Then would come the polishing of the instrument, and the speculum was completed. This occurred in early times, for 1,800 years ago specula were made that closely resembled those in use at the present day. In the museum at Naples you may see a great variety of surgical instruments that have been dug up from the ruins of Pompeii, and amongst them both catheters and specula.

In our own times we have devised instruments which, instead of merely directing the light, or making a passage for it, reflect it on the part we want to see.

The ophthalmoscope has been discovered in my time. Helmholtz published his first tract in 1851. The following year Reute applied a concave reflector—a great advance. Coccius and Anagnostikis in 1853 and 1854 still further improved the instrument, which from this time has been continually enlarging our knowledge. The use of the ophthalmoscope to distinguish the normal and abnormal states of the fundus of the eye is now constantly taught in all our schools. Need I say that here this branch of knowledge has never been behind? When I was a student, ophthalmology, as well as surgery, was taught by Mr. Critchett. He was aided by Mr. Wordsworth. Both have left us to give their entire public work to the Ophthalmic Hospital, but Messrs. Hutchinson, Couper, Waring Tay, and James Adams are on our staff as well as on that of Moorfields. Though the ophthal-

moscope is thus new, and its invention generally attributed to Helmholz, who was the first to see, in the living eye, the optic nerve, and the vessels emerging from it, the discovery had been foreshadowed by a London Hospital man, Mr. Cumming, who first proved that the fundus of the eye could be made visible so far as to show its colour. Although Mr. Cumming did not see the optic nerve, he exploded the notion that the fundus was a dark surface, and thus prepared the way for a proper exploration of it, and even before then it was known that a red gleam was sometimes seen. This appearance was, however, rare, and regarded as a symptom of disease. Some thought it due to deficiency of pigment; others to a morbid change in the retina. It was called by Beer the "cat's-eye amaurosis," but no one seems to have studied it from an optical point of view.

Much as the ophthalmoscope has contributed to enlarge our knowledge of diseases of the eye it promises to assist us in other departments. Think of the intimate connection between the eye and the brain! The optic nerve comes to the surface direct from the centre of nerve-life. In examining the optic disc we are gazing into the window of the brain, and important information may thus be gained respecting its condition. Here we may watch the changes that occur in disease as well as those produced by other agencies. Some of my pupils at this hospital may remember examples of remedies which we studied in this way.

Reflected light is now also employed for the exploration of diseases of the ear.

Another new instrument for extending the range of

vision is the laryngoscope. This instrument enables us to see distinctly the interior of the living larynx. It therefore brings the diseases of that organ within the range of vision. In diagnosis, it has changed conjecture into certainty. It is, moreover, available as a guide to treatment. By its aid we can watch the course of disease —we can apply local remedies—we can introduce various instruments into the larynx, and manipulate them when there.

When I commenced practice the laryngoscope was unknown. Soon afterwards, as early as 1856, I detected and applied caustic to an ulcer by means of a laryngeal mirror and a reflector, thereby curing a patient who had been discharged as incurable from several hospitals. I was not then aware that the living larynx had been seen before ; but since then it has been shown that others had anticipated me in seeing the organ, though no one had before then used a laryngoscope for the purpose of treating disease. Garcia, the great professor of singing, had previously used a mirror, and reflected light to study the movements of the organ of voice, and in 1855 a description of what he saw appeared in the proceedings of the Royal Society. Thus a scientific man preceded physicians, and pointed out to them a new means of diagnosis, for a recent writer, Dr. Mandl, of Paris, tells us that Garcia urged him to apply his mirror to the investigation of disease ; but even he was anticipated, for the late Dr. Babington had, in 1829, contrived a similar apparatus, which he called a glottiscope. This much, however, must be said, that he seems to have laid aside his instrument, while Garcia completed all he proposed. His paper became known to Türck, of Vienna, who tried to use the instrument on patients. He lent his mirror to

Czermak, who greatly improved—we may say perfected—the apparatus, making it portable and convenient. From this time the progress of the art of laryngoscopy has been truly wonderful, and you know the zeal with which it has been pursued by another of my colleagues, Dr. Mackenzie. Nor is the use of the instrument confined to diseases of the larynx. It affords us information respecting general diseases, such as consumption, asthma, aneurism of the aorta, and other intra-thoracic tumours.

We come at length to the practical application of our knowledge in the treatment of disease; for a patient's pain is not eased by referring it to change of structure or perversion of function. Suffering humanity cries out for relief from its agony, and to afford this is the end and aim of our studies. Hence the high place we give to materia medica and therapeutics, for they embrace the whole Medical art. The words may be translated by the homely English terms, remedies, and how to use them. Fresh air, change of climate, bathing, exercise, gymnastics, rest, regulation of diet, whatever conduces to the restoration of health or the comfort of the patient, are properly embraced in materia medica, and the mode of availing ourselves of these or any other agencies comprises therapeutics. How erroneous, then, is the popular notion that Medicine consists in prescribing drugs. Useful as these are, other things are more important, and therefore the sarcasm that "the doctor is a man who puts drugs of which he knows little into a body of which he knows less," falls powerless on the scientific follower of Medicine. We have, indeed, discovered new drugs, but more than that, we have advanced in our knowledge of the effects of old ones. We have made progress, too, in our

methods of employing other remedies, and have devised or discovered no small number of new ones. Look but a moment at what the surgical side of our Profession has done. New operations have been contrived to meet cases heretofore without remedy, or milder measures have been substituted for severer ones. Conservative surgery has grown to full dimensions, and is well exemplified in the hundreds of useful limbs that have been preserved. Antiseptic surgery, largely tried in this hospital, is a measure of these last days, and may yet be said to be on its trial. The simple process of skin-grafting promises to banish one opprobrium from surgery.

You will not expect me to go deeply into this branch of the subject, nor is it necessary on behalf of this hospital, which has always held so high a place as a surgical school. When I entered it the senior surgeon was Mr. Luke, a gentleman who became the President of the Royal College of Surgeons. To-day another of our consulting surgeons, Mr. Curling, fills that high office, and a third, Mr. John Adams, from whom I not only learned surgery in the wards, but whose lucid lectures lightened the study of anatomy, has but lately retired from the arduous duty of examiner. It would be a mere truism before this audience to say that the present staff maintains the high reputation of the school.

But I turn from this to those illustrations of progress in our art with which as a physician I am more familiar. The subcutaneous syringe, though invented by Dr. Alexander Wood a little before, did not come into use until Mr. Hunter took it up so warmly. The aspirator is a still more recent invention, and its use is constantly extending. Nitrous oxide has been revived, and other

agents have been introduced with the view of finding a safe anæsthetic ; while the application of the ether spray has furnished us with a mode of producing local anæsthesia.

Allied to these in some respects is another new drug—chloral hydrate—which has already proved a blessing to thousands of sufferers, and from which much is to be hoped as its properties become more completely understood. We have all often longed for a remedy that should be applicable when we dare not administer opium, and the new anodyne is just the thing. It seems to be as great an acquisition to the physician as chloroform was to the surgeon. It has been used in almost all conceivable cases. Just as Liebreich's discovery was announced, I was on the point of crossing the English channel, and provided myself with some of it to test it in sea-sickness. I tried it on myself and others who accompanied me with sufficient success to lead to further trials, and it was mentioned at the Medical Society of London. Long afterwards I found in Germany that two professors had a warm dispute as to priority in the use of the drug for the same purpose.

The bromides also have come into use in this time. I remember well Sir C. Locock introducing the use of bromide of potassium as a sedative in certain special cases, and I watched its effect with considerable interest. Soon after it received a much wider application, and is at this moment one of the most interesting remedies to study. In my lectures I have related a series of experiments made with a view of determining its effect on the brain, so far as ophthalmoscopic exploration may be accepted as an index, and this appears to me a proper method of

studying the effects. At the Medical Society of London, when speaking of iodides, I took occasion to show how other salts might be substituted with advantage for those formed by potassium with both bromine and iodine, and those observations seem to me still to be of value, inasmuch as they have since been put forward by foreign writers as original.

The salts of lithia have taken a high position among remedies, and will, I have reason to anticipate, be still more largely used.

Our knowledge of the alkaloids which form the active principles of certain plants is becoming constantly enlarged, and this ability to concentrate our remedies seems one of the greatest indications of progress.

In the management of fever the use of the thermometer has enabled us to act with precision, and to measure the effect of treatment. No greater shock to ancient prejudices could well have been given than the proposal to keep fever patients in cold baths for hours; but it has been done, and the improvement has been measured by the thermometer. By cold baths it is to be understood that the water is a little cooler than the body of the patient—not that the contrast is too violent or the shock great. Here it is singular to note that the system called hydropathy has after all a rational foundation, though the excess to which it has been carried by ignorant charlatans has been as injurious as it was unscientific. The rational use of cool water in febrile diseases has been fairly tried in the London Hospital, and it is to be hoped that the Profession will not abandon it to pretenders. I may add that where, as too

often happens in private practice, there are many obstacles to the employment of prolonged baths, similar results may be obtained by assiduously and regularly sponging the surface.

Recent observations also go to prove that quinine possesses a considerable power of reducing the temperature in pyrexia, and the discovery enables us to see why it is sometimes so useful a remedy, and to measure its effect.

Another agent which recent research tends to prove possesses like properties is alcohol. In all its forms this has long been employed as a stimulant, and it will, perhaps, require further investigation to convince many that their sensations mislead them when they fancy it warms them. As to the medicinal use of alcohol, we have seen it go through a complete cycle of change—a circumstance that might well persuade us that it has not always been rationally employed, and that may also suggest doubts whether we even yet understand and appreciate its properties. Physiological experiment is probably leading us to the true method of employing it, and its power of reducing the temperature is an objective fact that may shortly receive its true interpretation.

The next remedy I cite is electricity. Assuredly we have lately made great strides in applying electrical influences to the cure of disease. The galvano-cautery is in many cases taking the place of the knife or of the hot iron. The silent, painless continuous current is made to effect what was vainly hoped for from the more obvious and painful shocks. We remove pain, get rid of effusions—nay, disperse solids by the galvanic current. No greater triumph

of treatment can be mentioned than that involved in the removal of tumours by electrolysis. On the discovery of the great power thus placed in our hands, I applied it at once in cases of bronchocele of large size that had resisted all other treatment, and I am glad to be able to state that it was very successful. If, however, the first to try this method, I was not the first to record the result—in fact, while preparing to do so I was forestalled. I thereupon determined to try this method within the larynx. Difficult as is the operation, it has been completely successful ; but again I was anticipated in recording the cases, for while waiting for more in order to confirm them before making them public, Professor Fieber, of Vienna, related several cures by this plan of treatment, whereupon I contented myself with publishing in the *Medical Press* a translation of his contribution.

It was in the wards of the London Hospital that acute rheumatism was so successfully treated by means of blisters applied in the manner first proposed and thoroughly systematised by our senior physician, Dr. Herbert Davies.

Other illustrations of the progress of our art in this department might be named, but you will see them all in your work in the wards, and I have therefore only set down a few as they occurred to me. I need only add the class of disinfectants and antiseptics, and that only because they enable me to remark that they belong to Preventive Medicine, which I had not forgotten when I spoke of cure as the first duty of the doctor. No doubt prevention is better than cure for individuals, and for communities it is the main thing. The majority of us, however, are occupied with individual patients, though some of the

Profession are devoting their energies to the State under recent efforts of the Legislature to carry out the measures Medical men have long advised.

I have said enough to show that though sceptics may scoff because we cannot annihilate death, Medicine is marching at a rapid rate. When they tell us the Medical world stands still, we can reply with the assurance that Galileo felt—

"È pur si muove."

And now, gentlemen, why have I chosen this subject, and why have I said so much of the part played by the London Hospital? Why? But that I may remind you of your solemn obligations. Others have laboured, you "enter into their labours." If so much has been done by your predecessors, see that you hand down to those who come after you an unbroken history of worthy work.

But great as is the honour of being inscribed on the roll of those who have extended the art of healing, let not this be the sole, nor even the chief end of your ambition. I should be sorry for words of mine to stimulate too much the spirit of emulation, lest it should degenerate into envy. It is not given to every one to shine as a sun or as a star in the firmament of Medicine, but none should therefore refuse to light his little lamp and direct its rays on the path of the halt or the maimed, or let them cheer the gloom of the valley of the shadow of death. In its humblest sphere the Medical Profession affords abundant opportunities of employing the highest faculties, and all who enter it should feel that it is worthy of their life work. We do not accumulate knowledge to consume it on ourselves. Our daily duty and delight is to distribute—to apply it. The fulfilment of this duty is its own reward,

inasmuch as it is more blessed to give than to receive. The Medical art is thus like charity itself—

"It is twice blessed ;
It blesses him that gives, and him that takes."

Its one great aim is to preserve and restore life's most precious possession—health. Surely you can ask no higher employment than this—to assuage pain ; call back

"Nature's sweet restorer, balmy sleep ;"

to give sight to the blind, hearing to the deaf, voice to the dumb ; to comfort the sick ; to bind up the broken-hearted ; to induce the wandering reason to return, to smooth the pillow of death.

"Glorious your aim, to ease the labouring heart,
To war with Death, and stop his flying dart ;
To trace the source whence the fierce contest grew,
And life's short lease on easier terms renew ;
To calm the frenzy of the burning brain,
And heal the tortures of imploring pain ;
Or, when more powerful ills all efforts brave,
To ease the victim no device can save,
And smooth the stormy passage to the grave."

Here is a career worthy of any one, and if you thus regard it I congratulate you on your choice of a vocation that has been sanctified by our Great Exemplar, who "went about doing good."

On the other hand, if you do not love it for its own sake, but have set your heart on honour in the sight of your ellows, that is easier gained elsewhere.

Again, if you regard the Profession as a mere means of making money, you mistake your calling. Medicine provides her votaries with honourable subsistence—seldom more. If

you would make haste to be rich, try trade. Well has Reveillé Parise said :—"La Médicine est la plus noble des professions, et la plus triste des métiers."

But before you enter on the practice of the Profession you have much to accomplish, and to this end I may congratulate you on your choice of your *alma mater*. In this College you have the fullest opportunity of grounding yourselves in those sciences on which Medicine is based ; and in the wards of the Hospital you can see how they are being applied to the relief of every form of human suffering. Here Science and Art go hand in hand.

Here you will see that not only must knowledge be extensive, but that it must be exact, for it often has to deal with the issues of life and death. It must also be ready for use on every emergency. Unlike the lawyer, who can often take time to consult his authorities, the doctor is sometimes suddenly summoned to save human life.

When you think of all this, you may quail at the extent of what is expected of you—

"Ars longa, vita brevis—"

You may be tempted to say, *ars longa, curriculum breve*, for the time assigned to you for study is short enough. Be not, however, discouraged, for regular daily work will soon show you how much may be accomplished. You need not always look at what is before, but sometimes may cheer yourselves by glancing at what you have left behind. Then you will be encouraged, and feel the truth of the saying,

"Labor omnia vincit."

And finally, gentlemen, amidst all your labours, never

forget that, as your vocation is to be the stay of your suffering fellow-creatures, so knowledge and skill need to be supplemented by human sympathy. In the wards of the hospital the patients are not only sick but poor. They have, therefore, a double claim on your kindness. Let no thoughtless word or gesture of yours aggravate their affliction. Familiarity with pain should only make your touch and tone more tender. Add, then, to erudition and skill the gentleness that springs from the cultivation of the most refined feelings of your nature.

"The world's a room of sickness, where each heart
Knows its own anguish and unrest.
The truest wisdom, then, and noblest art,
Is his who skills of comfort best ;
Whom by the softest step and gentlest tone,
Enfeebled spirits own,
And love to raise the languid eye
When, like an angel's wing, they feel him flitting by."

McGowan & Co., Steam Printers, Great Windmill Street, W

WORKS BY THE SAME AUTHOR.

I.

8vo, cloth, 4s. 6d.

SORE THROAT:

ITS NATURE, VARIETIES, AND TREATMENT;

INCLUDING

THE USE OF THE LARYNGOSCOPE AS AN AID TO DIAGNOSIS.

"As a good epitome of diseases of the throat, we commend Dr. James's unpretending volume."—*Athenæum.*

II.

8vo, 1s. 6d.

THE CLIMATE OF SAN REMO,

AND OTHER WINTER STATIONS OF THE MEDITERRANEAN,

INCLUDING

NICE, MENTONE, CANNES, AND HYÈRES.

"A model in the class of literature to which it belongs."—*Daily News.*

III.

A VISIT TO VICHY,

WITH

A SKETCH OF ITS MINERAL SPRINGS

AND

THERMAL ESTABLISHMENT.

"Intending visitors and medical men generally, can hardly do better than avail themselves of Dr. Prosser James's pamphlet, which will put them quite *au courant* with the latest researches on its waters, and with the cases in which they are likely to be useful."—*Brit. and For. Med.-Chir. Rev.*

Baillière, Tindall, and Cox.